



(12) **EUROPEAN PATENT APPLICATION**

(43) Date of publication:
28.03.2001 Bulletin 2001/13

(51) Int. Cl.⁷: **H04B 7/08**

(21) Application number: **00118876.2**

(22) Date of filing: **31.08.2000**

(84) Designated Contracting States:
**AT BE CH CY DE DK ES FI FR GB GR IE IT LI LU
MC NL PT SE**
Designated Extension States:
AL LT LV MK RO SI

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(30) Priority: **24.09.1999 SG 9904733**

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(54) **Downlink beamforming method**

(57) A method for downlink capacity enhancement in a wireless communications system comprising a base station with antenna array and terminals that are physically remote from said base station, the method comprising steps of:

receiving at said base station antenna array combinations of arriving signals from said plurality of remote terminals;
estimating an uplink channel covariance matrix (UCCM) for each of said terminals from said combinations of arriving signals;
constructing from each of said UCCM a downlink channel covariance matrix (DCCM);
calculating from all said DCCM a downlink weight vector for each of said terminals; and
transmitting a set of information signals from said base station antenna array according to said downlink weight vectors.

